

# PATENT COOPERATION TREATY



From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

## PCT

To:

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### NOTIFICATION OF TRANSMITTAL OF INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing  
(day/month/year)

**08. 6. 2004**

Applicant's or agent's file reference

**R03085 PCT**

#### IMPORTANT NOTIFICATION

International application No.

**PCT/JP 03/06082**

International filing date (day/month/year)

**15.05.2003**

Priority date (day/month/year)

**20.05.2002**

Applicant

**RICOH COMPANY, LTD.**

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/JP

**Japan Patent Office**

3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan

Authorized officer

**Commissioner of the Patent Office**

Telephone No. +81-3-3581-1101 Ext. 3261

**2P**

**9415**

## ATTENTIONS

### 1. Demand for copy of documents

Copy of the documents described in the international preliminary examination report and not described in the international search report.

An applicant can request the copy of these cited documents to the Japan Patent Office, however, Japan Patent Information Organization also services sales of the copy of these cited documents. Those who request copying of the cited documents should pay attention to the following points.

#### [Application Method]

- (1) As for Patent (Utility Model, Design) Gazette, the following points shall be defined clearly.

Types of patent, utility model, and design

Fiscal year and number of publication of application or publication of unexamined application (or patent number, registration number)

Necessary number of paper sheets

- (2) As for documents except for the gazette, the following points are required attention.

Be sure to attach the copy of the international preliminary examination report (which shall be returned).

#### [Application and Reference]

〒135-0016

4-1-7 Toyo Koto-ku, Tokyo

Sato Daiya Building

Foundation of Japan Patent Information Organization

Information Processing Department

Copy Service section

TEL: 03-3508-2313

Note) The period for requesting the copy of the documents to Japanese Patent Office is set to 7 years from the international application date.

2. It is necessary to submit the copy of international application (except for cases of already transmitted from the International Bureau) and its prescribed translation, and to pay the national fee. Respective countries set different periods so as to be required attention. (See Treaty Article 22, Article 39, and Article 64 (2) (a) (i))

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>R03085 PCT</b>	<div style="display: flex; justify-content: space-between;"> <div>FOR FURTHER ACTION</div> <div>See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)</div> </div>	
International application No. <b>PCT/JP 03/06082</b>	International filing date (day/month/year) <b>15.05.2003</b>	Priority date (day/month/year) <b>20.05.2002</b>
International Patent Classification (IPC) or national classification and IPC Int.Cl. <b>B41J2/045 B41J2/055 B41J2/175 B05B17/04 F04B43/04 F04B9/00</b>		
Applicant <b>RICOH COMPANY, LTD.</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  <div style="text-align: center; font-weight: bold;">22.08.2003</div>	Date of completion of this report  <div style="text-align: center; font-weight: bold;">14.05.2004</div>	
Name and mailing address of the IPEA/JP  <div style="text-align: center; font-weight: bold;">Japan Patent Office</div> 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Authorized officer  <div style="text-align: center; font-weight: bold;">DAICHI TAKAMATSU</div> Telephone No. +81-3-3581-1101 Ext. 3261	<div style="border: 1px solid black; padding: 2px; text-align: center; font-weight: bold;">2P 9415</div>

**I. Basis of the report****1. With regard to the elements of the international application:\***

- ☒ the international application as originally filed
- ☐ the description:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the claims:  
Nos. \_\_\_\_\_, as originally filed  
Nos. \_\_\_\_\_, as amended (together with any statement) under Article 19  
Nos. \_\_\_\_\_, filed with the demand  
Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the drawings:  
sheets/figs \_\_\_\_\_, as originally filed  
sheets/figs \_\_\_\_\_, filed with the demand  
sheets/figs \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

**2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:**

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

**4. ☐ The amendments have resulted in the cancellation of:**

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_

**5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\***

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims	<u>1-23</u>	YES
	Claims	<u></u>	NO
Inventive step (IS)	Claims	<u>1-8</u>	YES
	Claims	<u>9-23</u>	NO
Industrial applicability (IA)	Claims	<u>1-23</u>	YES
	Claims	<u></u>	NO

**2. Citations and explanations (Rule 70.7)**

Document1:JP 2001-300421 A (SEIKO EPSON CORPORATION),2001.10.30  
 Document2:JP 2002-67303 A (FUJI PHOTO FILM CO.,LTD.),2002.03.05  
 Document3:JP 2000-299991 A (SEIKO EPSON CORPORATION),2000.10.24  
 Document4:JP 2002-59548 A (RICOH COMPANY,LTD.), 2002.02.26

The subject matter of claims 1-8 are novel, since there are not disclosed in any of the prior art documents cited in the international search report. In particular, [A deformable plate whose deformation is greater than a total deformation of the diaphragms, the deformable plate forming a wall face of the common liquid chamber; and a pressure correcting chamber provided across said deformable plate from the common liquid chamber so as to communicate with the vibration chambers.] is not disclosed in any documents.

The subject matter of claims 9-23 do not appear to involve an inventive step in view of the documents 1-4 cited in the ISR.

The technical field of D1-D4 are all concerned with mutually related technical fields an electrostatic actuator especially a liquid droplet ejecting head.

Therefore, the skilled person in the art would easily conceive the idea of employing the feature in one or any of D2-D4 to substitute the feature disclosed in D1.

In addition, the technical matter of D1-D4 related to the constituent feature of the invention are as the following.

D1 The liquid droplet ejecting head, an ink cartridge or an ink-jet recording apparatus which has the above-mentioned head, ejecting liquid droplet by pressure waves caused by electrostatic forces which has a pressure correcting chamber communicating with the vibration chamber, and the pressure correcting chamber having at least a first side thereof formed by a deformable part that is displaceable in accordance with an external pressure.

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V-2

D2 The electrostatic actuator comprising a part that reduces an area of contact formed when the deformable part comes into contact with a opposit side of the chamber. and wherein at least one projection is formed on a side of the deformable part which side opposes the second side of the pressure correcting chamber. and wherein the projection is formed of a material is silicon oxide.

D3 The electrostatic actuator comprising a part that the hydrophobic film on a side of the deformable part of the chamber.

D4 The electrostatic actuator comprising a part that the conductive layer on a side of the deformable part of the chamber.